REMARKS

In this response, Applicant has amended claim 10 to incorporate the subject matter of claims 11 and 12, which are now cancelled. Claims 13-15 have been amended to ensure correct dependencies, and new claims 21-27 have been added for consideration by the Examiner. New claims 21-27, which are directed to a doped fibre optical amplifier for a wavelength division multiplex optical ring network, are apparatus claims that correspond to the currently-pending network claims 10 and 13-19. No new matter has been added, and all amendments and new claims are fully supported by the as-filed specification.

Turning to the rejections, the claimed invention is directed to an improved optical network and corresponding apparatus that re-circulates Amplified Spontaneous Emission (ASE) noise to control the optical amplifier gain. The claimed invention maintains stable operation, even with changes in channel numbers such as when a fiber breaks or is restored, by monitoring an ASE lasing peak and switching amplifier. Particularly, to maintain a gain substantially at a level provided by the optical amplifiers prior to the detected loss, the claimed invention employs detector circuitry that switches the optical amplifiers in the ring network to a gain control mode after detecting a loss of a lasing peak.

The Office Action indicates that claims 11 and 12, which are now incorporated into independent claim 10, stand rejected as being obvious over Saleheen ("Closed Cycle Lasing of ASE Noise in a WDM Ring Network") in view of Caprino (WO 02/080409) and Stentz (U.S. Pat. No. 7,019,894). However, no one skilled in the art would combine the cited references as proffered by the Office because each cited reference utilizes a different approach to perform its intended function that is incompatible with the other references' approaches.

More specifically, the primary reference, Saleheen, discloses lasing of ASE noise in a WDM ring network. Saleheen also employs lasing of the ASE noise to maintain a constant

amplifier gain. However, Saleheen is conspicuously silent regarding a mechanism to handle a change in the channels.

Caprino discloses a method that allows traffic channels added to a span in an optical fiber telecommunications system to survive a break in a preceding span. Caprino, however, utilizes a control system wherein the optical amplifiers minimize ASE noise while amplifying the traffic channels during normal operation.

The control system of Caprino is distinct from the system of Saleheen. Particularly, in response to a sudden drop of traffic channels, such as when a fiber breaks, for example, the optical amplifier gain in Caprino is maintained by amplifying the ASE. Saleheen, as stated previously, uses lasing of the ASE noise to maintain constant amplifier gain. Therefore Caprino does not use the ASE lasing mechanism of Saleheen. Moreover, given these distinctive and contrary approaches to controlling optical amplifier gain, no one skilled in the art would ever combine the teachings to the references of Saleheen and Caprino.

The other reference, Stentz, fails to remedy Saleheen and Caprino. Stentz discloses a method and apparatus for automatically controlling the gain of an optical amplifier. According to Stentz, ASE may be utilized as a proxy for traffic channel power to control amplifier gain. More particularly, an ASE set point is used in a feedback loop, compared against the measured ASE power, and then continuously adjusted against an error signal.

The ASE power level in Stentz is not employed as a binary measure to switch amplifier modes as claimed. Rather, it is part of a continuous feedback control mechanism. Therefore, Stentz also uses an amplifier control mechanism that is distinct from the lasing peak mechanism of Saleheen. Because the mechanisms are so different, no one skilled in the art would ever combine Saleheen and Stentz.

As for Stentz and Caprino, both utilize very different control mechanisms. Therefore, no one skilled in the art would think to combine these references either. Further, the control

equipment in Stentz cannot be used to detect the absence of an ASE lasing peak. As such, combining these three cited references would not produce the claimed invention.

Accordingly, for at least the foregoing reasons, the cited references, Saleheen, Caprino, and Stentz, do not teach or suggest, alone or in combination, amended claim 10 or any of its dependent claims.

As for the dependent claims, claims 13-14 are indicated as containing allowable subject matter. However, the Office Action also indicates that claims 15-19 stand rejected as being obvious over Saleheen in view of Caprino and Stentz, and in further view of Roberts (U.S. Pat. No. 5,969,840). Claims 15-19 depend directly or indirectly from independent claim 10. Therefore, they, too, are non-obvious over the cited art.

Finally, claims 21-27 are new and, as stated above, correspond to the network claims above. Claim 21, which is the independent claim, is directed to an optical amplifier and contains language similar to that of claim 10. Therefore, claim 21, and its dependent claims, are non-obvious over the cited art for at least the reasons stated above.

In light of the foregoing amendments and remarks, Applicant respectfully requests that the Office withdraw all rejections and issue a Notice of Allowance for all pending claims.

Respectfully submitted,
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